

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2006
 DateRun: 07/11/2006
 Experimenters: Jason Marshall
 ClientType: Cleaner Manufacturer
 ProjectNumber: Project #1
 Substrates: Ceramics, Plastic, Steel
 PartType: Coupon
 Contaminants: Hucker's Soil
 Cleaning Methods: Manual Wipe
 Analytical Methods: Gravimetric

Purpose: To evaluate two supplied products for all purpose cleaning.

Experimental Procedure: The supplied cleaning products were diluted with DI water to vendor recommended concentration for all purpose Cleaning (30:1 and 10:1).

Six preweighed ceramic, nine plastic G-10 and nine painted steel coupons were coated with Hucker's Soil Formulation (Jif Creamy Peanut Butter 9.2%, Salted Butter 9.2%, Arrowhead Mills stone ground wheat flour 9.2%, Egg Yolk 9.2%, Evaporated milk 13.8%, Distilled water 45.8%, Printer's ink with boiled linseed oil 0.9%, Shaws saline solution 2.7%) using a hand held swab and allowed to dry for 24 hours at room temperature. The contaminated coupons were weighed again to determine the amount of soil added.

Three coupons were placed into a Gardner Straight Line Washability unit. A Professional Painter's Rag was attached to the cleaning sled and soaked with 5-7 sprays of cleaning solutions. Each coupon was sprayed 7-10 times with the same cleaning solution. The cleaning unit was run for 20 cycles (~33 seconds). At the end of the cleaning, coupons were wiped once with a dry paper towel. Final weights were recorded, efficiencies were calculated and recorded.

Results: Both products performed well on the painted steel. The DFC Degreaser worked well on the plastic coupons as well. The table lists the amount of soil added, the amount remaining and the percent removed for each coupon cleaned.

| Cleaner | Initial wt | Final wt | % Removed |
|--------------------|------------|----------|-----------|
| Degreaser Steel | 0.8443 | 0.0383 | 95.46 |
| | 0.4892 | 0.0309 | 93.68 |
| | 0.3379 | 0.0301 | 91.09 |
| Heavy Duty Steel | 0.3551 | 0.0074 | 97.92 |
| | 0.4036 | 0.0101 | 97.50 |
| | 0.3675 | 0.0093 | 97.47 |
| Degreaser Plastic | 0.7741 | 0.0468 | 93.95 |
| | 0.8812 | 0.0662 | 92.49 |
| | 0.7610 | 0.0530 | 93.04 |
| Heavy Duty Plastic | 1.1863 | 0.3612 | 69.55 |
| | 0.3662 | 0.1005 | 72.56 |
| | 0.6274 | 0.1256 | 79.98 |
| Degreaser Ceramic | 0.3877 | 0.1063 | 72.58 |
| | 0.6423 | 0.1940 | 69.80 |
| | 0.2760 | 0.0654 | 76.30 |
| Heavy Duty Ceramic | 0.5731 | 0.1817 | 68.30 |
| | 0.2485 | 0.0733 | 70.50 |
| | 0.6185 | 0.1933 | 68.75 |

Summary:

| | | | | | |
|--------------------------------|--|--------------------------|---------------|--------------------|-------------------------------------|
| Substrates: | | Ceramics, Plastic, Steel | | | |
| Contaminants: | | Hucker's Soil | | | |
| Company Name: | | Product Name: | Conc.: | Efficiency: | Effective: |
| Cogent Environmental Solutions | | DFC Degreaser | 3.33 | 86.49 | <input checked="" type="checkbox"/> |

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|--------------------------------|------------------------|----|-------|--------------------------|--|
| Cogent Environmental Solutions | DFC Heavy Duty Cleaner | 10 | 80.28 | <input type="checkbox"/> | |
|--------------------------------|------------------------|----|-------|--------------------------|--|

Conclusion:

The DFC Degreaser on average removed over 86% of the soil from the three substrates. The DFC Heavy Duty cleaner only removed 80%.